One patient, one room: theory and practice – 10 years on

By Dr. Michael Phiri

What is the status of the practice based upon ‘one patient, one room’?

By providing each patient with a single room, a hospital is recognising the importance of the dignity of the individual and guarantees that patient one of the basic human rights – the right to privacy. Such provision also goes a long way to ensuring compliance with the Human Rights Act 1988 - to preserve the dignity, privacy and confidentiality of the patient.

What is the scientific evidence for the practice based upon a policy of ‘one patient, one room’?

A decade ago, the evidence advocating practice based upon a policy of ‘One Patient, One Room’ was already undeniable and compelling compared to that against (Phiri 2004). Yet there was a significant challenge to change attitudes and the mind set of policy makers, commissioners of new hospitals and those responsible for developing technical guidance for healthcare facilities (Phiri 2014).

To date there is increasing evidence worldwide that entrenched attitudes have started to change with the all private-room model gaining a wider acceptance largely in part due to hospital building programmes or the need for rationalisation of the healthcare estate in order to enhance its effectiveness and efficiency towards delivery of better outcomes. Increasingly, new hospital design includes greater proportions of single room accommodation and in some cases all single inpatient rooms. The wider acceptance is also apparent in the development of technical guidance that recommends that new hospitals should have a higher proportion of single rooms than the 10-13 per cent that has traditionally been demanded and provided.

In the UK the Department of Health’s Health Building Note 04-01 recommends 50 per cent and in practice NHS Trusts have now been putting in their briefing programmes requirements for new hospitals with 50 per cent, 83 per cent and 100 per cent single in-patient rooms. Individuals and organisations that seem to advocate against this policy do not seem to appreciate that 95 per cent of the NHS estate is old with some of the buildings pre-dating the formation of the NHS in 1948. Even with sustained annual investment in all single-room hospitals it will take a very long time before we have more single rooms than multi-bedded rooms.

Findings from one study conducted in Sweden at Karolinska University Hospital involving the renovation of a high-acuity NICU in a 1970s building and creation or a single-family design layout reduced the length of stay by more than 10 days and also reduced mortality. Several other clinical outcomes were also improved: Infants got to healthier weights faster, and the families were better informed and coped better. So this is a well-documented example where a carefully specified and integrated cluster of architectural and care process changes substantially improved outcomes.

The clinicians in the department had for years tried to implement a family-centered care model but were prevented by the fact that the old NICU had open bays with multiple incubators. About seven years ago the department was renovated to become a single-family design layout, where even Level 3 babies (who are very premature and vulnerable, 24-28 weeks gestation), could be with their mothers within about four hours after C-section. Instead of mum being assigned a bed in a different unit, mum and dad are now with the baby continuously in a private room in the renovated unit. Even a 25-week baby can be on their mother’s chest for skin-to-skin contact and bonding soon after delivery. Importantly, the clinicians developed and implemented an integrated bundle of family-centered care interventions and components. The architectural renovation is what made implementing the new care model possible. Crucially, the researchers randomly assigned half of about 360 preterm infants to the new unit, and the other half to the old-style unit that limited the presence of the mum and dad and the amount of training and information they could be given.
What is the scientific evidence 'against' the practice based upon a policy of 'one patient one room'?

Maben et al 2015 study sought to add to the evidence-base through one of the most detailed studies conducted to date on the ways in which single room wards impact on staff working practices, safety and quality of care, costs and nurse staffing and patient satisfaction. The study’s starting point was a review of hospital design options, which found scant and ambiguous evidence relating to the impact of single rooms on patient safety. Also results from an evaluation of a pilot ward in England with 100% single rooms suggested that, although patients were more satisfied than those in multi-bedded rooms, infection rates did not decrease, whereas cleaning costs increased. Length of stay was unaltered. The wider evidence of the impact of single rooms on infection rates was conflicting.

Maben et al 2015 study reports that although the nature of tasks undertaken by nursing staff did not change, nurses needed to adapt their working practices significantly and felt ill prepared for the new ways of working, resulting in trial-and-error use of new approaches to care. Staff preference remained for a mix of single rooms and bays, and the study findings suggest that a move to all single rooms may have significant implications for the nature of teamwork in the longer term. Patients preferred single rooms. There was no evidence that single rooms had any impact on patient safety outcomes, although staff in some areas felt that surveillance was understandably more difficult and fall risk increased. Cleaning costs were higher.

Maben et al 2015 study also suggests that training and rehearsal of new ways of working in advance of the move may facilitate and possibly accelerate adaptation to single room working, potentially improving patient and staff experience and enhancing patient monitoring and surveillance. The evidence also has implications for future ward design. Recommendations for future research concern the need to use a larger patient sample to explore patient experience and preferences in hospital builds with different proportions of single rooms and different designs, and the need to examine the long-term impact of single room working on the nature of teamwork and informal learning. There is also need for more evidence of the impact of single rooms on clinical/care outcomes and costs.

Is a policy of 'one patient one room' sustainable?

Since the early the 1920s when early proponents such as A.S. Bacon the then superintendent of Chicago’s Presbyterian Hospital, USA advocated provision of all single room hospital, one issue that has dogged the policy of ‘One Patient One Room’ has always been that of affordability and sustainability.

The ‘Repeatable Rooms and Standardised Components’ initiative is a step-change that seeks to enable ProCure21+ to deliver and even exceed the 14% savings required by the UK Government Construction Strategy. An accelerated but thorough planning and design stage has brought together stakeholders and experts from across the NHS and the supply chains to produce a series of repeatable rooms and standardised components adding extra value to healthcare construction schemes delivered through the framework.

Three single inpatient room arrangements anticipate up to 9% cost savings compared with HPCG (Healthcare Premises Cost Guides) model:

1. Inboard en-suites - (against corridor) providing improved views to the outside and excellent natural daylight (Bedroom NIA 20.1sqm En-suite NIA 3.8sqm IPS 1sqm).
2. Outboard en-suites – (against external wall) including a large vision panel to the corridor offering good observation and social contact within the ward (Bedroom NIA 18.5sqm En-suite NIA 3.8sqm IPS 1sqm).
3. Nested en-suites - (back-to-back arrangement) maintaining good views to the outside while prioritising observation and social contact but with a longer corridor length (Bedroom NIA 18.9sqm En-suite NIA 4.3sqm IPS 1sqm).
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Furniture Configuration Type 1
Bed located directly opposite entry door, a rectangular wardrobe with up-stand shelves and a separate shelving unit
Bedroom NIA: 14.3sqm
En-suite NIA: 3.8sqm
Service zone: 0.4sqm
Optional bay window: 0.6sqm

Furniture Configuration Type 2
as Configuration Type 1 but with tall-boy wardrobe
Bedroom NIA: 14.3sqm
En-suite NIA: 3.8sqm
Service zone: 0.4sqm
Optional bay window: 0.6sqm

Furniture Configuration Type 3
as Configuration Type 2 but with a different bed position behind the en-suite to provide a greater sense of defensible space and avoid the focus on the entry door, whilst maintaining good sight lines from door vision panel
Bedroom NIA: 14.3sqm
En-suite NIA: 3.8sqm
Service zone: 0.4sqm
Optional bay window: 0.6sqm

Furniture Configuration Type 4
as Configuration Type 3 but with rectangular wardrobe with up-stand shelves
Bedroom NIA: 14.3sqm
En-suite NIA: 3.8sqm
Service zone: 0.4sqm
Optional bay window: 0.6sqm

Figure 2 Standardisation and the use of repeatable designs of single inpatient rooms incorporating several furniture configurations enhance flexibility.
Use of the repeatable room arrangements have been benchmarked against HPCGs to deliver up to 11% target cost savings while providing improved patient outcomes. Each room arrangement is evidence-based and informed by experience, extensively consulted upon and co-produced with users and staff to ensure improved patient outcomes while achieving reduced capital construction costs.

Clinical benefits of single inpatient bedrooms:
- 3600mm x 3700mm bed space reflects rigorous research by the Medical Architecture Research Unit (MARU) at London South Bank University and the Health and Care Infrastructure Research and Innovation Centre (HaCIRIC) at Loughborough and Sheffield Universities, indicating this space to be optimal in accommodating a full range of clinical activities taking place at the bedside or in the individual’s bed space, together with operating equipment at the bedside.
- Clinical hand wash station is located in a highly visible and convenient area with a shelf above the basin on which staff may place papers, etc. while washing their hands.
- Single bedroom design provides good sightlines from the bedhead to the en-suite, a design feature that is particularly beneficial for people with dementia.
- Good daylight with sightlines to outside space from the bedhead, providing a brighter, more therapeutic environment.
- Family space, including the option of an overnight stay for a relative or friend.
- Space for artwork within the room.
- En-suite door swing enables hoist access and the double doors give staff the ability to assist patients if required.

Developments in technology that include control devices, automation and wearable technologies are set to facilitate widespread adoption of the single inpatient model and the need to better meet individual requirements notably control of the physical environment and human experiences. The Internet of Things involving wearable devices such as personal activity trackers for monitoring and recording health and wellbeing form part of the network of objects or "things” embedded with electronics, software, sensors and connectivity to enable them to exchange data with a designer, manufacturer, operator and/or other connected devices, without requiring human intervention.
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References


Image references:

Figure 1 Standardisation and the use of repeatable designs of single inpatient rooms. The use of standardised components is said to save up to 30% on typical ProCure21+ schemes. (http://www.procure21plus.nhs.uk/wp-content/uploads/2015/07/Repeatable-Rooms-Catalogue-1506.pdf) (Source: Courtesy of Balfour Beatty, Galliford Try, Interserve, Kier and Willmott Dixon working together for the ProCure21+ framework).

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